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ESD-TR-77-319



E-SYSTEMS

Montek Division

(9)

(2)

Report No. 131500-623
19 August 1977

ADB022528

ACCEPTANCE TEST REPORT
FOR THE
AN/TRN-41 TACAN NAVIGATIONAL SET

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18. SUPPLEMENTARY NOTES		
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report gives the results of the acceptance tests on the AN/TRN-41, TACAN Navigational Set. ↑		

408354 B

ACCEPTANCE TEST REPORT
for the
AN/TRN-41 TACAN NAVIGATIONAL SET

RECEIVED	DATE	BY	INITIALS	DDC	UNANNOUNCED	JUSTIFICATION	DISTRIBUTION/AVAILABILITY CODES	Dist. AAIL and/or SPECIAL

B

This report gives the results of the acceptance tests on the AN/TRN-41, TACAN Navigational Set.

1. **Test Identification.** The acceptance tests for the AN/TRN-41 TACAN Navigational Set are those tests that will be performed during production of the AN/TRN-41 assuring proper operation of the set. These tests have been performed on preproduction units to verify compliance with the prime item development specification 404L-701-5017A Part I and Part II, dated 17 September 1976.
2. **Functional Purpose of Test.** These tests form a part of the AN/TRN-41 qualification tests.
3. **Test Objectives.** To demonstrate that the AN/TRN-41 TACAN Navigational Set, will meet the requirements of specification number 404L-701-5017A, Part I of two parts, dated 20 August 1976.
4. **Description of Test Article.** For this test, four AN/TRN-41 sets were used. These sets were tested at Montek, Salt Lake City, using the procedures and test configurations shown in Appendix I of specification 404L-701-5017 Part II.
5. **Summary of Test Results.** The following table shows the requirement of the prime item development specification 404L-701-5017A, Part I and the test number in the AN/TRN-41 acceptance test procedure, Appendix 1 of specification number 404L-701-5017 Part II. The AN/TRN-41 meets the requirements of 404L-701-5017A as shown in the data sheets of Attachments 1 and 2.

Because the filter box had to be redesigned due to interface problems with the .5 KW motor generator, ESD gave permission for E-Systems to run the 100 hour burn-in and system tests without the filter box rather than hold up the testing program. Therefore, there are blanks which are circled on some data sheets that indicate the data was not taken.

<u>Requirements</u>	<u>Requirement Reference 404L-701-5017 Part I</u>	<u>Acceptance Test Procedure 404L-701-5017 Part II</u>
100 Hour Burn-In	4.2.2.1.3	10.3.4.1
Input Power	3.1.2.1, 3.7.3.1	10.3.4.3.2.1
Receiver Sensitivity	3.7.1.3.4	10.3.4.3.2.2
Power Output	3.7.1.2.2	10.3.4.3.2.3
15 Hz Reference Burst	3.7.1.2.3.3	10.3.4.3.2.4
135 Hz Reference Burst	3.7.1.2.3.4	10.3.4.3.2.5
Azimuth Alignment	3.2.1.5, 3.7.2.1.10	10.3.4.3.2.6
Demand Only Mode	3.2.1.4	10.3.4.3.2.7
DME Only Mode		10.3.4.3.2.8
Monitor Alarms	3.2.1.11	10.3.4.3.2.9
Conversion Operation - Airdroppable		10.3.4.3.2.10

6. Description of Test Facility and Procedures. The test facilities and procedures are described in Appendix I of specification number 404L-701-5017, Part II, dated 17 September 1976.

7. Test Setup Diagrams. The test setup diagrams are provided in Appendix I of specification number 404L-701-5017 Part II.

8. List of Test Equipment. Following is a list of test equipment used for the AN/TRN-41 acceptance tests. The list includes manufacturer, model number, and calibration date as applicable.

<u>Name</u>	<u>Manufacturer and P/N</u>	<u>Serial No.</u>	<u>Calibration Due Date</u>
DC Power Supply 0-50V	HP6274B	-	N/A
DC Power Supply 0-10V	HP721A		N/A
DC Power Supply	Power Design	72-116	N/A
DC Power Supply	Sorenson QRS40-75	B289	N/A
DC Power Supply	Acopian	K20D50	N/A
Pin Diode Switch	Montek	EM135	N/A
Pin Diode Modulator	Montek 131500-701	2	10/77

<u>Name</u>	<u>Manufacturer and P/N</u>	<u>Serial No.</u>	<u>Calibration Due Date</u>
Gaussian Pulse Pair Gen.	Montek 131500-707	2	5/77
Half Amplitude Detector	Montek 131500-702	EM131	6/77
Test Box	Montek 131500-703	1	N/A
Test Fixture (Azimuth Alignment)	Montek 006893	1	N/A
Linear Detector	Montek 1315203-100	1	N/A
Linear Detector	Montek 1315203-100	2	N/A
Synthesizer	Montek MM-603	EM134	5/77
DC Current Meter	HP428B	MH49	12/77
Digital Voltmeter	Fluke 8100B	79427	6/77
Digital Counter	Fluke 1953A	401-C	10/77
Oscilloscope	Tektronix 465		7/77
Survey Transit	David White/Path TR303		N/A
RF Load (10W, 50 Ω)	HP8491A		N/A
RF Attenuator	Omni Spectra 20510-40		N/A
RF Attenuator	Narda 768-30		N/A
RF Attenuator	Narda 768-20		N/A
RF Attenuator Variable 0-10 dB	Weinschel 905	182	N/A
RF Attenuator Variable 0-10 dB	Weinschel 905	4250	N/A
RF Attenuator Variable 0-110 dB	Weinschel 2576	1803	N/A
Circulator	E&M L20T87	102	N/A
RF Generator	HP612A	3780	6/77
Pulse Generator	Data Pulse 110B		5/77
RF Peak Power Meter	Boonton 8900A		9/77
Coupler Hybrid 3 dB	Anaren MA-38		N/A
Isolator	E&M Lab L20T73	182	N/A
Isolator	E&M Lab L20T73	104	N/A
UHF Signal Source	HP8614A	822-06090	8/77
Linear Detector	AN/GRM-97	3016	8/77
Battery	BB-451/U		N/A
Generator Set .5 KW	MEP24		N/A
Stop Watch	Galco		
Temperature Chamber	E-Systems, No. 00501		N/A

9. **Recorded Test Data.** Attachment 1 contains the data sheets resulting from the 100 hour burn-in tests. Attachment 2 contains the data sheets from the system performance tests. Attachment 3 contains a summary list of the failures incurred during the 100 hour burn-in for the four systems.

10. **Test Conditions.** The system performance tests were conducted at ambient conditions at the test site. The 100 hour burn-in tests were performed in a temperature chamber with the temperature being cycled from -55°C to +55°C.

11. **Test Result Analysis.** The test results show that the AN/TRN-41 systems met all requirements of the acceptance test procedure.

12. **Certification.** The last page of each data sheet shown in Attachments 1 and 2 have been signed by a Montek Q.A. representative and a DCAS representative, certifying that the test results are authentic, accurate, current and in accordance with the related test procedures.

ATTACHMENT 1
100 HOUR BURN-IN DATA SHEETS

Specification Number
404L-701-5017

Part II of two parts

1 December 1976

OFFICIAL DATA COPY

SAMPLE
ATTACHMENT 3

100 HOUR BURN-IN TEST DATA SHEET

Date 1 DEC 76

Serial Numbers

RT 002

Ant 001

Filter —

<u>Paragraph No.</u>	<u>Description</u>	<u>Data</u>
10.3.4.1.5	Equipment Turn-on Time (Cycle 1)	<u>11:35AM</u> 12/1/76
10.3.4.1.7.1	Check Monitor Alarms	(Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	<u>22.5</u> (≥22.5 Vdc)
10.3.4.1.7.3	RT Power Output Power	<u>125</u> (100 Watts Minimum)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risettime	<u>1.9 μs</u> (2.0 ± 2.5 μs)
	RT Waveform Falltime	<u>2.2 μs</u> (2.5 ± 0.5 μs)
	RT Waveform Pulsewidth	<u>3.1 μs</u> (3.5 ± 0.5 μs)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.667</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)
	Ident Code Repetition Rate	<u>30.0</u> (37.5 ± 3.75 ¹ / _{sec})
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-Off Time (Cycle 1)	<u>8:15AM</u> 12/2/76

BEST AVAILABLE COPY

Paragraph No.	Description	Data
10.3.4.1.5	Equipment Turn-on Time (Cycle 2)	1:00 PM 2 DEC 1976
10.3.4.1.7.1	Check Monitor Alarms	TURNED OFF AT 5:00 PM TURNED ON AGAIN AT 5:15 AM 3 DEC 76 (Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	<u>22.5</u> (≥ 22.5 Vdc) TEST AT 3:45 PM
10.3.4.1.7.3	RT Peak Output Power	<u>132</u> (100 Watts Minimum) 3 DEC 76
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.0</u> (2.0 ± 2.5 μ s)
	RT Waveform Falltime	<u>2.7</u> (2.5 ± 0.5 μ s)
	RT Waveform Pulsewidth	<u>4.0</u> (3.5 ± 0.5 μ s)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.669</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)
	Ident Code Repetition Rate	<u>37.0</u> (37.5 ± 3.75 μ s) SEC
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 2)	12:00 MIDNIGHT 3 DEC
10.3.4.1.5	Equipment Turn-on Time (Cycle 3)	4:15 AM 4 DEC 1976
10.3.4.1.7.1	Check Monitor Alarms	(Check if no alarms) TEST TIME 10:30
10.3.4.1.7.2	Output Voltage of Filter	<u>22.5</u> (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>126</u> (100 Watts Minimum)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.1</u> (2.0 ± 2.5 μ s)
	RT Waveform Falltime	<u>2.6</u> (2.5 ± 0.5 μ s)
	RT Waveform Pulsewidth	<u>3.4</u> (3.5 ± 0.5 μ s)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.669</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)
	Ident Code Repetition Rate	<u>36.0</u> (37.5 ± 3.75 μ s) SEC
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 3)	1:00 AM 5 DEC 1976

Paragraph	Description	Data	
10.3.4.1.5	Equipment Turn-on Time (Cycle 4)	<u>6:00 AM</u> 5 DEC 76	
10.3.4.1.7.1	Check Monitor Alarms	<u>✓</u>	(Check if no alarms) <i>TEST TIME 12/15 PM 5 DEC 76</i>
10.3.4.1.7.2	Output Voltage of Filter	<u>○</u>	(≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>125</u>	(100 Watts Minimum)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.1 μs</u>	($2.0 \pm 2.5 \mu$ s)
	RT Waveform Falltime	<u>2.5 μs</u>	($2.5 \pm 0.5 \mu$ s)
	RT Waveform Pulsewidth	<u>3.3 μs</u>	($3.5 \pm 0.5 \mu$ s)
	Random Voltage Variations	<u>✓</u>	(Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.669 ms</u>	(66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u>	(Check it OK)
	Ident Code Repetition Rate	<u>37.5</u>	(37.5 ± 3.75 per sec)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u>	(Check it OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u>	(Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 4)	<u>2:00 AM</u> 6 DEC 76	
10.3.4.1.5	Equipment Turn-on Time (Cycle 5)	<u>6:05 AM</u> 6 DEC 76	
10.3.4.1.7.1	Check Monitor Alarms	<u>✓</u>	(Check if no alarms) <i>TEST TIME 3:15 PM 6 DEC -</i>
10.3.4.1.7.2	Output Voltage of Filter	<u>○</u>	(≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>125</u>	(100 Watts Minimum)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.1</u>	($2.0 \pm 2.5 \mu$ s)
	RT Waveform Falltime	<u>2.5</u>	($2.5 \pm 0.5 \mu$ s)
	RT Waveform Pulsewidth	<u>3.3</u>	($3.5 \pm 0.5 \mu$ s)
	Random Voltage Variations	<u>✓</u>	(Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.669</u>	(66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u>	(Check if OK)
	Ident Code Repetition Rate	<u>37.0</u>	(37.5 ± 3.75 per sec)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u>	(Check if OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u>	(Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 5)	<u>2:17 AM</u> 7 DEC 76	

10.3.4.1.10	Post Burn-In Tests	<u>✓</u>	
10.3.4.1.7.1	Check Monitor Alarms	<u>✓</u>	(Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	<u>22.5</u>	(22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>125</u>	(100 Watts Minimum)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.1</u>	(2.0 ± 2.5 μs)
	RT Waveform Falltime	<u>2.5</u>	(2.5 ± 0.5 μs)
	RT Waveform Pulsewidth	<u>3.1</u>	(3.5 ± 0.5 μs)
	Random Voltage Variations	<u>✓</u>	(Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.666</u>	(66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u>	(Check if OK)
	Ident Code Repetition Rate	<u>38.5</u>	(37.5 ± 3.75 per sec)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u>	(Check if OK)
10.3.4.1.7.8	Demand Only - ON AIR	<u>✓</u>	(Check if OK)

John J. Kner

12-12-76

John J. Kner

12-12-76



Specification Number
404L-701-5017

Part II of two parts

1 December 1976

SAMPLE
ATTACHMENT 3

100 HOUR BURN-IN TEST DATA SHEET

Date 1/20/77

Serial Numbers

RT 003

Ant 002

Filter _____

<u>Paragraph No.</u>	<u>Description</u>	<u>Data</u>
10.3.4.1.5	Equipment Turn-on Time (Cycle 1)	<u>11:45AM</u>
10.3.4.1.7.1	Check Monitor Alarms	<u>✓</u> (Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	<u>_____</u> (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>no output</u> (100 Watts Minimum) <u>failure</u>
	Random Voltage Variation	<u>_____</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>_____</u> ($2.0 \pm 0.5 \mu s$)
	RT Waveform Faltime	<u>_____</u> ($2.5 \pm 0.5 \mu s$)
	RT Waveform Pulsewidth	<u>_____</u> ($3.5 \pm 0.5 \mu s$)
	Random Voltage Variations	<u>_____</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>_____</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>_____</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>_____</u> (Check if OK)
	Ident Code Repetition Rate	<u>_____</u> ($37.5 \pm 3.75 \mu s$ <u>seconds</u>)
	Random Voltage Variation	<u>_____</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>_____</u> (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	<u>_____</u> (Check if OK)
10.3.4.1.8	Equipment Turn-Off Time (Cycle 1)	<u>_____</u>

RT was turned off at 7:20 AM 1/21/77

~~Fixed~~

Failure were corrected and test restarted at 2:45 PM. 1/21/77

1 December 1976

SAMPLE
ATTACHMENT 3

100 HOUR BURN-IN TEST DATA SHEET

Date 1/21/77

Serial Numbers

RT _____



Ant _____



Filter _____

Paragraph No.	Description	Data
10.3.4.1.5	Equipment Turn-on Time (Cycle 1)	<u>2:45 PM</u>
10.3.4.1.7.1	Check Monitor Alarms	<u>✓</u> (Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	<u>○</u> (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>122</u> (100 Watts Minimum)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.02 μs</u> (2.0 ± 2.5 μ s)
	RT Waveform Faltime	<u>2.55 μs</u> (2.5 ± 0.5 μ s)
	RT Waveform Pulsewidth	<u>3.4 μs</u> (3.5 ± 0.5 μ s)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.667 ms</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)
	Ident Code Repetition Rate	<u>37.5</u> (37.5 ± 3.75 μ s/sec) (seconds)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-Off Time (Cycle 1)	<u>2:00 3:30 PM</u>

NOTE - RF ABSORBER WAS PLACED IN CHAMBER DURING TEST -
TO PREVENT RESONANCE NOISE.

When system was turned on at 6:30 PM (-55°C) a failure occurred - failure was due to a bad solder joint on 1A4-8 also a broken solder path between 1A2 R48 & 1A2 R49 was causing problems. These were corrected and test continued at 12:00 Noon 1/22/77.

Paragraph No.	Description	Data
10.3.4.1.5	Equipment Turn-on Time (Cycle 2)	<u>12:00 Noon</u> 1/22/77
10.3.4.1.7.1	Check Monitor Alarms	 (Check if no alarms) - <small>TEST TIME 6:00 AM 1/23/77</small>
10.3.4.1.7.2	Output Voltage of Filter	<u>22.5</u> (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>128</u> WATTS (100 Watts Minimum) <small>100 Watts Loss - 31.1 dB</small>
	Random Voltage Variation	<u> </u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risettime	<u>2.15</u> (2.0 ± 2.5 μ s)
	RT Waveform Falltime	<u>2.58</u> (2.5 ± 0.5 μ s)
	RT Waveform Pulsewidth	<u>3.37</u> (3.5 ± 0.5 μ s)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.67</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)
	Ident Code Repetition Rate	<u>37.5</u> (37.5 ± 3.75 μ s) <small>seconds</small>
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 2)	<u>8:00 AM</u> 1/23/77
10.3.4.1.5	Equipment Turn-on Time (Cycle 3)	<u>11:55 AM</u> 1/23/77
10.3.4.1.7.1	Check Monitor Alarms	 (Check if no alarms) <small>TEST TIME 7:00 AM 1/24/77</small>
10.3.4.1.7.2	Output Voltage of Filter	<u>22.5</u> (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>122</u> WATTS (100 Watts Minimum)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risettime	<u>2.11</u> (2.0 ± 2.5 μ s)
	RT Waveform Falltime	<u>2.51</u> (2.5 ± 0.5 μ s)
	RT Waveform Pulsewidth	<u>3.32</u> (3.5 ± 0.5 μ s)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.67</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)
	Ident Code Repetition Rate	<u>36.5</u> (37.5 ± 3.75 μ s) <small>seconds</small>
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 3)	<u>8:00 AM</u> 1/24/77

Paragraph	Description	Data
10.3.4.1.5	Equipment Turn-on Time (Cycle 4)	<u>12:00 Noon</u> 1/24/77
10.3.4.1.7.1	Check Monitor Alarms	(Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	 (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>126 Watts</u> ✓ (100 Watts Minimum)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.11</u> (2.0 ± 2.5 μ s)
	RT Waveform Falltime	<u>2.45</u> (2.5 ± 0.5 μ s)
	RT Waveform Pulsewidth	<u>3.32</u> (3.5 ± 0.5 μ s)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.67</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check it OK)
	Ident Code Repetition Rate	<u>36.5</u> (37.5 ± 3.75 μ s)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check it OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 4)	<u>8:00 AM</u> 1/25/77
10.3.4.1.5	Equipment Turn-on Time (Cycle 5)	<u>1:00 PM</u> 1/27/77
10.3.4.1.7.1	Check Monitor Alarms	(Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	 (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>126 Watts</u> (100 Watts Minimum)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>1.09</u> (2.0 ± 2.5 μ s)
	RT Waveform Falltime	<u>2.47</u> (2.5 ± 0.5 μ s)
	RT Waveform Pulsewidth	<u>3.32</u> (3.5 ± 0.5 μ s)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.67 ms</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)
	Ident Code Repetition Rate	<u>37.0</u> (37.5 ± 3.75 μ s)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 5)	<u>10:00 AM</u> 1/30/77

10.3.4.1.10

Post Burn-In Tests

Test Time 1100 AM 1/30/71

10.3.4.1.7.1

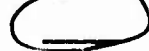
Check Monitor Alarms



(Check if no alarms)

10.3.4.1.7.2

Output Voltage of Filter



(22.5 Vdc)

10.3.4.1.7.3

RT Peak Output Power

110 W

(100 Watts Minimum)

Random Voltage Variation

✓

(Check if OK)

10.3.4.1.7.4

RT Waveform Risettime

2.07

(2.0 ± 2.5 μs)

RT Waveform Falltime

2.47

(2.5 ± 0.5 μs)

RT Waveform Pulsewidth

3.27

(3.5 ± 0.5 μs)

Random Voltage Variations

✓

(Check if OK)

10.3.4.1.7.5

Antenna Rotation Period

66.666

(66.6666 ± 0.13333 ms)

Random Voltage Variation

✓

(Check if OK)

10.3.4.1.7.6

Ident Code Generation

✓

(Check: if OK)

Ident Code Repetition Rate

37.5

(37.5 ± 3.75 μs)

Random Voltage Variation

✓

(Check if OK)

10.3.4.1.7.7

Demand Only - Standby

✓

(Check if OK)

10.3.4.1.7.8

Demand Only - ON AIR

✓

(Check if OK)

MONTEK Q.A.

for J.J.
Laulliams

Specification Number
404L-701-5017

Part II of two parts

1 December 1976

SAMPLE
ATTACHMENT 3

100 HOUR BURN-IN TEST DATA SHEET

Date 4/8/77

Serial Numbers

RT 001



Ant 004

Filter -

<u>Paragraph No.</u>	<u>Description</u>	<u>Data</u>
10.3.4.1.5	Equipment Turn-on Time (Cycle 1)	<u>✓</u> 2:00PM
10.3.4.1.7.1	Check Monitor Alarms	<u>✓</u> (Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	<u>○</u> (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>120</u> (100 Watts Minimum)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risettime	<u>2.0</u> ($2.0 \pm 2.5 \mu s$)
	RT Waveform Falltime	<u>23</u> ($2.5 \pm 0.5 \mu s$)
	RT Waveform Pulsewidth	<u>3.1</u> ($3.5 \pm 0.5 \mu s$)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.667</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)
	Ident Code Repetition Rate	<u>37.7</u> ($37.5 \pm 3.75 \mu s$ seconds)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-Off Time (Cycle 1)	<u>✓</u> 10:05AM

Paragraph No.DescriptionData

10.3.4.1.5	Equipment Turn-on Time (Cycle 2)	12:00 AM 4/11/77
10.3.4.1.7.1	Check Monitor Alarms	(Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	(≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	118 (100 Watts Minimum)
	Random Voltage Variation	(Check if OK)
10.3.4.1.7.4	RT Waveform Risettime	2.4 ($2.0 \pm 2.5 \mu s$)
	RT Waveform Faltime	2.5 ($2.5 \pm 0.5 \mu s$)
	RT Waveform Pulsewidth	3.1 ($3.5 \pm 0.5 \mu s$)
	Random Voltage Variations	(Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	66.67 (66.6666 ± 0.13333 ms)
	Random Voltage Variation	(Check if OK)
10.3.4.1.7.6	Ident Code Generation	(Check if OK)
	Ident Code Repetition Rate	37.5 ($37.5 \pm 3.75 \mu s$ seconds)
	Random Voltage Variation	(Check if OK)
10.3.4.1.7.7	Demand Only - Standby	(Check if OK)
10.3.4.1.7.8	Demand Only - On Air	(Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 2)	8:30 AM 4/11/77
10.3.4.1.5	Equipment Turn-on Time (Cycle 3)	12:00 AM 4/12/77
10.3.4.1.7.1	Check Monitor Alarms	(Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	(≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	(100 Watts Minimum)
	Random Voltage Variation	(Check if OK)
10.3.4.1.7.4	RT Waveform Risettime	($2.0 \pm 2.5 \mu s$)
	RT Waveform Faltime	($2.5 \pm 0.5 \mu s$)
	RT Waveform Pulsewidth	($3.5 \pm 0.5 \mu s$)
	Random Voltage Variations	(Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	66.67 (66.6666 ± 0.13333 ms)
	Random Voltage Variation	(Check if OK)
10.3.4.1.7.6	Ident Code Generation	(Check if OK)
	Ident Code Repetition Rate	($37.5 \pm 3.75 \mu s$ seconds)
	Random Voltage Variation	(Check if OK)
10.3.4.1.7.7	Demand Only - Standby	(Check if OK)
10.3.4.1.7.8	Demand Only - On Air	(Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 3)	8:30 AM 4/12/77

Paragraph	Description	Data
10.3.4.1.5	Equipment Turn-on Time (Cycle 4)	✓ 12:30 Noon 4/15/77
10.3.4.1.7.1	Check Monitor Alarms	✓ (Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	 (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	✓ (100 Watts Minimum)
	Random Voltage Variation	✓ (Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.1</u> (2.0 ± 2.5 μs)
	RT Waveform Falltime	<u>2.4</u> (2.5 ± 0.5 μs)
	RT Waveform Pulsewidth	<u>3.5</u> (3.5 ± 0.5 μs)
	Random Voltage Variations	✓ (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.676</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	✓ (Check if OK)
10.3.4.1.7.6	Ident Code Generation	✓ (Check if OK)
	Ident Code Repetition Rate	<u>37.0</u> (37.5 ± 3.75 μs) ^{2 seconds}
	Random Voltage Variation	✓ (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	✓ (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	✓ (Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 4)	✓ 8:00 PM 4/14/77
10.3.4.1.5	Equipment Turn-on Time (Cycle 5)	✓ 11:50 AM 4/14/77
10.3.4.1.7.1	Check Monitor Alarms	✓ (Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	 (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	✓ (100 Watts Minimum)
	Random Voltage Variation	✓ (Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.1</u> (2.0 ± 2.5 μs)
	RT Waveform Falltime	<u>2.4</u> (2.5 ± 0.5 μs)
	RT Waveform Pulsewidth	<u>3.6</u> (3.5 ± 0.5 μs)
	Random Voltage Variations	✓ (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	✓ (66.6666 ± 0.13333 ms)
	Random Voltage Variation	✓ (Check if OK)
10.3.4.1.7.6	Ident Code Generation	✓ (Check if OK)
	Ident Code Repetition Rate	<u>36.5</u> (37.5 ± 3.75 μs) ^{2 seconds}
	Random Voltage Variation	✓ (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	✓ (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	✓ (Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 5)	✓ 7:40 4/15/77

10.3.4.1.10	Post Burn-In Tests		
10.3.4.1.7.1	Check Monitor Alarms	<input checked="" type="checkbox"/>	(Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	<u>20</u>	(22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<input checked="" type="checkbox"/>	(100 Watts Minimum)
	Random Voltage Variation	<input checked="" type="checkbox"/>	(Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.1</u>	(2.0 \pm 2.5 μ s)
	RT Waveform Falltime	<u>2.4</u>	(2.5 \pm 0.5 μ s)
	RT Waveform Pulsewidth	<u>3.6</u>	(3.5 \pm 0.5 μ s)
	Random Voltage Variations	<input checked="" type="checkbox"/>	(Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.67</u>	(66.6666 \pm 0.13333 ms)
	Random Voltage Variation	<input checked="" type="checkbox"/>	(Check if OK)
10.3.4.1.7.6	Ident Code Generation	<input checked="" type="checkbox"/>	(Check if OK)
	Ident Code Repetition Rate	<u>37.5</u>	(37.5 \pm 3.75 μ s ^{Seconds})
	Random Voltage Variation	<input checked="" type="checkbox"/>	(Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<input checked="" type="checkbox"/>	(Check if OK)
10.3.4.1.7.8	Demand Only - ON AIR	<input checked="" type="checkbox"/>	(Check if OK)

M. B. Smith
Accepted
Contractor QA Representative

4/15/77
Date

John H. Smith
Accepted
DCAS Representative

4-15-77
Date

Specification Number
404L-701-5017

Part II of two parts

1 December 1976

SAMPLE
ATTACHMENT 3

100 HOUR BURN-IN TEST DATA SHEET

Date 5/6/77

Serial Numbers

RT 004

Ant 003

Filter 002

<u>Paragraph No.</u>	<u>Description</u>	<u>Data</u>
10.3.4.1.5	Equipment Turn-on Time (Cycle 1)	<u>9:5 PM</u>
10.3.4.1.7.1	Check Monitor Alarms	<u>✓</u> (Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	<u>22</u> (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>125</u> (100 Watts Minimum)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.1</u> ($2.0 \pm 2.5 \mu s$) ✓
	RT Waveform Falltime	<u>2.5</u> ($2.5 \pm 0.5 \mu s$)
	RT Waveform Pulsewidth	<u>3.5</u> ($3.5 \pm 0.5 \mu s$)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.667</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)
	Ident Code Repetition Rate	<u>37</u> ($37.5 \pm 3.75 \mu s$ ⁹ seconds) ✓
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK) ✓
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-Off Time (Cycle 1)	<u>1:00 PM - MAY 7, 1977</u>
10.3.4.1.7.9	RT ALARM	<u>✓</u>
.10	ALARM RESET	<u>✓</u>
.11	ANT ALARM	<u>✓</u>
.12	ALARM RESET	<u>✓</u>

THE SYSTEM WAS OPERATED FOR \approx 10 HOURS IN THE SECOND CYCLE BEFORE THE TEST WAS TERMINATED ~~BECAUSE~~ BECAUSE OF SOME PROBLEMS. THEREFORE THE LAST CYCLE WAS ONLY RUN FOR \approx 16 HOURS.

<u>Paragraph No.</u>	<u>Description</u>	<u>Data</u>
10.3.4.1.5	Equipment Turn-on Time (Cycle 2)	<u>✓</u> 11 May 12:45 PM
10.3.4.1.7.1	Check Monitor Alarms	<u>✓</u> (Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	<u>○</u> (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>100 Watts</u> (100 Watts Minimum)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.0</u> (2.0 ± 2.5 μ s) ✓
	RT Waveform Falltime	<u>2.4</u> (2.5 ± 0.5 μ s)
	RT Waveform Pulsewidth	<u>3.6</u> (3.5 ± 0.5 μ s)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.667</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)
	Ident Code Repetition Rate	<u>37.5</u> (37.5 ± 3.75 μ s/seconds)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK) ✓
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 2)	<u>✓</u> 9:00 AM 12 May
10.3.4.1.5	Equipment Turn-on Time (Cycle 3)	<u>✓</u> 6:15 PM 13 May
10.3.4.1.7.1	Check Monitor Alarms	<u>✓</u> (Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	<u>○</u> (≥ 22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>100</u> (100 Watts Minimum)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.0</u> (2.0 ± 2.5 μ s) ✓
	RT Waveform Falltime	<u>2.4</u> (2.5 ± 0.5 μ s)
	RT Waveform Pulsewidth	<u>3.6</u> (3.5 ± 0.5 μ s)
	Random Voltage Variations	<u>✓</u> (Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.667</u> (66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)
	Ident Code Repetition Rate	<u>37.5</u> (37.5 ± 3.75 μ s/seconds)
	Random Voltage Variation	<u>✓</u> (Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK)
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)
10.3.4.1.8	Equipment Turn-off Time (Cycle 3)	<u>✓</u> 2:15 PM 14 May

Paragraph	Description	Data	
10.3.4.1.5	Equipment Turn-on Time (Cycle 4)	<u>5:10 PM</u> 5/14/77	
10.3.4.1.7.1	Check Monitor Alarms	(Check if no alarms)	
10.3.4.1.7.2	Output Voltage of Filter	<u>(11)</u> (≥ 22.5 Vdc)	
10.3.4.1.7.3	RT Peak Output Power	<u>120</u> (100 Watts Minimum)	
	Random Voltage Variation	<u>✓</u> (Check if OK)	✓
10.3.4.1.7.4	RT Waveform Risetime	<u>2.0</u> (2.0 ± 2.5 μ s)	
	RT Waveform Falltime	<u>2.4</u> (2.5 ± 0.5 μ s)	
	RT Waveform Pulsewidth	<u>3.5</u> (3.5 ± 0.5 μ s)	
	Random Voltage Variations	<u>✓</u> (Check if OK)	
10.3.4.1.7.5	Antenna Rotation Period	<u>66.667</u> (66.6666 ± 0.13333 ms)	
	Random Voltage Variation	<u>✓</u> (Check if OK)	
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)	
	Ident Code Repetition Rate	<u>37.0</u> (37.5 ± 3.75 μ s) ^{2 seconds}	
	Random Voltage Variation	<u>✓</u> (Check if OK)	
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK)	✓
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)	
10.3.4.1.8	Equipment Turn-off Time (Cycle 4)	<u>1:10 PM</u> 5/15/77	
10.3.4.1.5	Equipment Turn-on Time (Cycle 5)	<u>5:10 PM</u> 5/15/77	
10.3.4.1.7.1	Check Monitor Alarms	(Check if no alarms)	
10.3.4.1.7.2	Output Voltage of Filter	<u>(11)</u> (≥ 22.5 Vdc)	
10.3.4.1.7.3	RT Peak Output Power	<u>130</u> (100 Watts Minimum)	
	Random Voltage Variation	<u>✓</u> (Check if OK)	✓
10.3.4.1.7.4	RT Waveform Risetime	<u>2.1</u> (2.0 ± 2.5 μ s)	
	RT Waveform Falltime	<u>2.5</u> (2.5 ± 0.5 μ s)	
	RT Waveform Pulsewidth	<u>3.6</u> (3.5 ± 0.5 μ s)	
	Random Voltage Variations	<u>✓</u> (Check if OK)	
10.3.4.1.7.5	Antenna Rotation Period	<u>66.67</u> (66.6666 ± 0.13333 ms)	
	Random Voltage Variation	<u>✓</u> (Check if OK)	
10.3.4.1.7.6	Ident Code Generation	<u>✓</u> (Check if OK)	
	Ident Code Repetition Rate	<u>✓</u> (37.5 ± 3.75 μ s) ^{2 seconds}	
	Random Voltage Variation	<u>✓</u> (Check if OK)	
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u> (Check if OK)	
10.3.4.1.7.8	Demand Only - On Air	<u>✓</u> (Check if OK)	
10.3.4.1.8	Equipment Turn-off Time (Cycle 5)	<u>9:10 PM</u> 5/15/77	
10.3.4.1.7.9	Alarm checks &	<u>✓</u>	

10.3.4.1.10	Post Burn-In Tests	<u>✓</u>	
10.3.4.1.7.1	Check Monitor Alarms	<u>✓</u>	(Check if no alarms)
10.3.4.1.7.2	Output Voltage of Filter	<u>(-)</u>	(22.5 Vdc)
10.3.4.1.7.3	RT Peak Output Power	<u>130</u>	(100 Watts Minimum)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.4	RT Waveform Risetime	<u>2.1</u>	(2.0 ± 2.5 μs)
	RT Waveform Faltime	<u>2.5</u>	(2.5 ± 0.5 μs)
	RT Waveform Pulsewidth	<u>3.6</u>	(3.5 ± 0.5 μs)
	Random Voltage Variations	<u>✓</u>	(Check if OK)
10.3.4.1.7.5	Antenna Rotation Period	<u>66.67</u>	(66.6666 ± 0.13333 ms)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.6	Ident Code Generation	<u>✓</u>	(Check if OK)
	Ident Code Repetition Rate	<u>37.0</u>	(37.5 ± 3.75 μs SECONDS)
	Random Voltage Variation	<u>✓</u>	(Check if OK)
10.3.4.1.7.7	Demand Only - Standby	<u>✓</u>	(Check if OK)
10.3.4.1.7.8	Demand Only - ON AIR	<u>✓</u>	(Check if OK)
10.3.4.1.7.9	RT ALARM	<u>✓</u>	
.10	ALARM RESET	<u>✓</u>	
.11	ANTI ALARM	<u>✓</u>	
.12	ALARM RESET	<u>✓</u>	

M. B. Hunt
Accepted
Contractor QA Representative

5/16/77
Date

John N. Johnson
Accepted
DCAS Representative

5/16/77
Date

ATTACHMENT 2
PERFORMANCE TEST DATA SHEETS - AN/TRN-41 ATP

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SAMPLE

ATTACHMENT 4

PERFORMANCE ACCEPTANCE TEST PROCEDURE DATA SHEET

FOR

NAVIGATIONAL SET, TACAN, AN/TRN-41

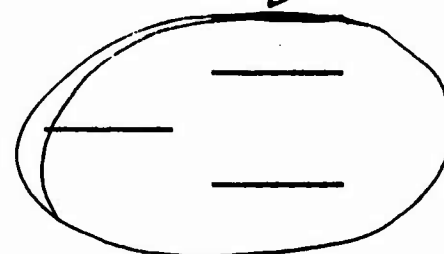
Date: 12-8-76Serial No. 001

Data:

ReadingCheck if OK

10.3.4.3.2.1 Input Power

- d. ON AIR lamp illuminated
- e. DC current (24 Vdc)
DC current is < 5 amps
- g. System operates at 30 Vdc
- h. System operates at 18 Vdc
- i. System operates with BB-451/U Battery
- j. System operates with MEP 026A Generator
- k. Output ripple of power filter
Ripple is less than 1 volt p to p

4.3 A

10.3.4.3.2.2 Receiver Sensitivity

- i. Pulse width ($3.5 \pm 0.5 \mu s$)
Pulse space, X channel ($12 \pm 0.5 \mu s$)
Pulse space, Y channel ($36 \pm 0.5 \mu s$)
- j. Interrogation pulse frequency ($200 \pm 2 \text{ Hz}$)
- o. Reply rate ($> 60 \text{ Hz}$)
- p. Attenuator No. 2 setting for 60 Hz average reading
on counter
- q. Calculate sensitivity as explained in text procedure 8.
for channel 65X (-90 dBm) sensitivity

3.212.035.52027810090

10.3.4.3.2.3 Transmitter Power Output

- b. Actual loss of attenuator and cable
- d. Zero set the peak calibrator
- e. Reading on peak power meter
Power output = step b. + step e. ($> 50.0 \text{ dBm}$)

31.3 dB19.1 dBm50.4 dBm

10.3.4.3.2.4 15 Hz Azimuth Reference Burst

- g. Record counter period reading on blank

Reading must be between .066533

and .066800

66,666_{ms}

✓

10.3.4.3.2.5 135 Hz Azimuth Reference Burst

- e. Count 8 pulses as shown in procedure step d.

✓

- f. Missing pulse is synchronized as shown in procedure step d.

✓

10.3.4.3.2.6 Azimuth Alignment

- a. Sight has been calibrated as described in procedure step a.

✓

- f. Measured distance from magnetic north spot to sighted spot

(< 8.3 inches)

4.0 inches

✓

- n. Counter display (33,333 ± 185² μs)

37 μs

33341 μs

✓

10.3.4.3.2.7 Demand Only Mode

- d. Pulse generator adjusted to look like figure 7

✓

- g. Time for system to turn on (< 20 seconds)

18 sec

✓

- h. Time for system to go to STANDBY (< 70 seconds)

63.5

✓

10.3.4.3.2.8 DME Only Mode

- f. Antenna stopped with no alarm

✓

- g. Identity light indicates code transmitted

✓

10.3.4.3.2.9 Monitor Alarm and Shutdown

- e. Parameter Tested Alarm Indication

Synthesizer Alarm

RT

✓

High VSWR

ANT

✓

Pulse Rate

RT

✓

Peak Power

RT

✓

Rec. Squitter

RT

✓

Ant Speed

ANT

✓

Ant Trigger

ANT

✓

Reply Delay

RT

✓

Aux Burst

RT

✓

North burst

RT

✓

Reset button returns the system to normal

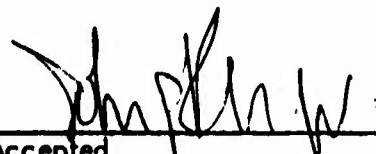
✓

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f.	Time for synthesizer alarm (≤ 5)	<u>4.25</u>	<u>✓</u>
	Time for high VSWR alarm (≤ 4)	<u>3.95</u>	<u>✓</u>
			<u>✓</u>

10.3.4.3.2.10 Conversion From Operation, to Manportable, to Airdroppable

a.	Set up for operation - units fit properly	<u>✓</u>
c.	RT fits in manportable configuration	<u>✓</u>
d.	RT fits in airdroppable configuration	<u>✓</u>
e.	Antenna fits in manportable configuration	<u>✓</u>
f.	Antenna fits in airdroppable configuration	<u>✓</u>
g.	Ancillary equipment fits in manportable configuration	<u>✓</u>
h.	Ancillary equipment fits in airdroppable configuration	<u>✓</u>


Accepted
Contractor QA Representative

12-17-76
Date

 
Accepted
DCAS Representative

12-17-76
Date

THE CIRCLED TESTS HAVE NOT BEEN COMPLETED

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SAMPLE

ATTACHMENT 4

PERFORMANCE ACCEPTANCE TEST PROCEDURE DATA SHEET
FOR
NAVIGATIONAL SET, TACAN, AN/TRN-41

Date: 1/31/77Serial No. 002

Data:

RT 003
Reading

Check if OK

10.3.4.3.2.1 Input Power

- d. ON AIR lamp illuminated
- e. DC current (24 Vdc)
DC current is < 5 amps
- g. System operates at 30 Vdc
- h. System operates at 18 Vdc
- i. System operates with BB-451/U Battery
- j. System operates with MEP 026A Generator
- k. Output ripple of power filter
Ripple is less than 1 volt p to p

24.0 Vdc4.75 Amps

✓

✓

✓

✓

✓



*Did NOT perform
STEP 10.3.4.3.2.1
Generator Problems*

10.3.4.3.2.2 Receiver Sensitivity

- i. Pulse width ($3.5 \pm 0.5 \mu s$)
Pulse space, X channel ($12 \pm 0.5 \mu s$)
Pulse space, Y channel ($36 \pm 0.5 \mu s$)
- j. Interrogation pulse frequency ($200 \pm 2 \text{ Hz}$)
- o. Reply rate ($> 60 \text{ Hz}$)
- p. Attenuator No. 2 setting for 60 Hz average reading
on counter
- q. Calculate sensitivity as explained in text procedure 8.
for channel 65X (-90 dBm) sensitivity

3.2 μs 12.0 μs 36.0 μs 202 Hz75 Hz100 db90 db

✓

✓

✓

✓

✓

✓

10.3.4.3.2.3 Transmitter Power Output

- b. Actual loss of attenuator and cable
- d. Zero set the peak calibrator
- e. Reading on peak power meter
Power output = step b. + step e. ($> 50.0 \text{ dBm}$)

31.6 db19.6 db51.2 db

✓

✓

10.3.4.3.2.4 15 Hz Azimuth Reference Burst

- g. Record counter period reading on blank

Reading must be between .066533

and .066800

66.667ms ✓

10.3.4.3.2.5 135 Hz Azimuth Reference Burst

- e. Count 8 pulses as shown in procedure step d.

✓

- f. Missing pulse is synchronized as shown in procedure step d.

✓

10.3.4.3.2.6 Azimuth Alignment

- a. Sight has been calibrated as described in procedure step a.

✓

- f. Measured distance from magnetic north spot to sighted spot

(≤ 8.3 inches)

3.5 inches

✓

- n. Counter display ($33,333 \pm 185 \mu s$)

33,310

✓

10.3.4.3.2.7 Demand Only Mode

- d. Pulse generator adjusted to look like figure 7

✓

- g. Time for system to turn on (< 20 seconds)

14 sec.

✓

- h. Time for system to go to STANDBY (< 70 seconds)

66 sec.

✓

10.3.4.3.2.8 DME Only Mode

- f. Antenna stopped with no alarm

✓

- g. Identity light indicates code transmitted

✓

10.3.4.3.2.9 Monitor Alarm and Shutdown

- e. Parameter Tested Alarm Indication

Synthesizer Alarm

RT

✓

High VSWR

ANT

✓

Pulse Rate

RT

✓

Peak Power

RT

✓

Rec. Squitter

RT

✓

Ant Speed

ANT

✓

Ant Trigger

ANT

✓

Reply Delay

RT

✓

Aux Burst

RT

✓

North burst

RT

✓

Reset button returns the system to normal


✓

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f.	Time for synthesizer alarm (≤ 5)	<u>4 sec</u>	<u>✓</u>
	Time for high VSWR alarm (≤ 4)	<u>3 sec</u>	<u>✓</u>
			<u> </u>

10.3.4.3.2.10 Conversion From Operation, to Manportable, to Airdroppable

a.	Set up for operation - units fit properly	<u>✓</u>
c.	RT fits in manportable configuration	<u>✓</u>
d.	RT fits in airdroppable configuration	<u>✓</u>
e.	Antenna fits in manportable configuration	<u>✓</u>
f.	Antenna fits in airdroppable configuration	<u>✓</u>
g.	Ancillary equipment fits in manportable configuration	<u>✓</u>
h.	Ancillary equipment fits in airdroppable configuration	<u>✓</u>

C. Williams 
Accepted
Contractor QA Representative

1/31/77
Date

John N. Johnson 
Accepted
DCAS Representative

2-1-77
Date

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SAMPLE

ATTACHMENT 4

PERFORMANCE ACCEPTANCE TEST PROCEDURE DATA SHEET
FOR
NAVIGATIONAL SET, TACAN, AN/TRN-41

Date: 18 May 1977Serial No. 003

Data:

RT 001

ANT 004 Reading

Filter 001

Check if OK

10.3.4.3.2.1 Input Power

- | | | | |
|----|---|--------------|----------|
| d. | ON AIR lamp illuminated | | <u>✓</u> |
| e. | DC current (24 Vdc) | <u>4.5A</u> | |
| | DC current is < 5 amps | | <u>✓</u> |
| g. | System operates at 30 Vdc | | <u>✓</u> |
| h. | System operates at 18 Vdc | | <u>✓</u> |
| i. | System operates with BB-451/U Battery | | <u>✓</u> |
| j. | System operates with MEP 026A Generator | | <u>✓</u> |
| k. | Output ripple of power filter | <u>38 mV</u> | |
| | Ripple is less than 1 volt p to p | | <u>✓</u> |

10.3.4.3.2.2 Receiver Sensitivity

- | | | | |
|----|---|-------------|----------|
| i. | Pulse width ($3.5 \pm 0.5 \mu s$) | <u>3.2</u> | <u>✓</u> |
| | Pulse space, X channel ($12 \pm 0.5 \mu s$) | <u>12.0</u> | <u>✓</u> |
| | Pulse space, Y channel ($36 \pm 0.5 \mu s$) | <u>35.4</u> | <u>✓</u> |
| j. | Interrogation pulse frequency (200 ± 2 Hz) | <u>201</u> | <u>✓</u> |
| o. | Reply rate (> 60 Hz) | <u>70</u> | <u>✓</u> |
| p. | Attenuator No. 2 setting for 60 Hz average reading on counter | <u>100</u> | |
| q. | Calculate sensitivity as explained in text procedure 8. | | |
| | for channel 65X (-90 dBm) sensitivity | <u>90</u> | <u>✓</u> |

10.3.4.3.2.3 Transmitter Power Output

- | | | | |
|----|--|---------------|----------|
| b. | Actual loss of attenuator and cable | <u>31.3dB</u> | |
| d. | Zero set the peak calibrator | | <u>✓</u> |
| e. | Reading on peak power meter | <u>19.7dB</u> | |
| | Power output = step b. + step e. (> 50.0 dBm) | <u>51.0dB</u> | <u>✓</u> |

10.3.4.3.2.4 15 Hz Azimuth Reference Burst

- ~~g.~~ Record counter period reading on blank
f. Reading must be between .066533

and .066800 seconds

66.665^{ms}

✓

✓

10.3.4.3.2.5 135 Hz Azimuth Reference Burst

- e. Count 8 pulses as shown in procedure step d.
f. Missing pulse is synchronized as shown in procedure step d.

✓

✓

10.3.4.3.2.6 Azimuth Alignment

- a. Sight has been calibrated as described in procedure step a.
f. Measured distance from magnetic north spot to sighted spot
(≤ 8.3 inches)

✓

.5

✓

- n. Counter display (33,333 \pm ³⁷~~185~~ μ s)

33,343 μ s

✓

✓

10.3.4.3.2.7 Demand Only Mode

- d. Pulse generator adjusted to look like figure 7
g. Time for system to turn on (< 20 seconds)
h. Time for system to go to STANDBY ($<$ ⁸⁰~~70~~ seconds)

14.5

70 sec

✓

✓

✓

✓

10.3.4.3.2.8 DME Only Mode

- f. Antenna stopped with no alarm
g. Identity light indicates code transmitted

✓

✓

10.3.4.3.2.9 Monitor Alarm and Shutdown

e.	<u>Parameter Tested</u>	<u>Alarm Indication</u>
	Synthesizer Alarm	RT
	High VSWR	ANT
	Pulse Rate	RT
	Peak Power	RT
	Rec. Squitter	RT
	Ant Speed	ANT
	Ant Trigger	ANT
	Reply Delay	RT
	Aux Burst	RT
	North burst	RT

✓

✓

✓

✓

✓

✓

✓

✓

✓

✓

Reset button returns the system to normal

✓

✓

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f.	Time for synthesizer alarm (< 5)	<u>4.2</u>	<u>✓</u>
	Time for high VSWR alarm (< 4)	<u>3.5 SEC</u>	<u>✓</u>
			<u>✓</u>

10.3.4.3.2.10 Conversion From Operation, to Manportable, to Airdroppable

a.	Set up for operation - units fit properly	<u>✓</u>
c.	RT fits in manportable configuration	<u>✓</u>
d.	RT fits in airdroppable configuration	<u>✓</u>
e.	Antenna fits in manportable configuration	<u>✓</u>
f.	Antenna fits in airdroppable configuration	<u>✓</u>
g.	Ancillary equipment fits in manportable configuration	<u>✓</u>
h.	Ancillary equipment fits in airdroppable configuration	<u>✓</u>

H. J. Anderson
Accepted
Contractor QA Representative

9-22-77
Date

John N. Johnson
Accepted
DCAS Representative

22 May 1977
Date

17 September 1976 (Draft Copy)

SAMPLE

ATTACHMENT 4

PERFORMANCE ACCEPTANCE TEST PROCEDURE DATA SHEET
FOR
NAVIGATIONAL SET, TACAN, AN/TRN-41

Date: 24 May 1977Serial No. 004

Data:

 RT-004
ANT-003
Reading

Form-42

Check if OK

10.3.4.3.2.1 Input Power

- | | | |
|--|----------------|----------|
| d. ON AIR lamp illuminated | | <u>✓</u> |
| e. DC current (24 Vdc) | <u>4.8 A</u> | |
| DC current is < 5 amps | | <u>✓</u> |
| g. System operates at 30 Vdc | | <u>✓</u> |
| h. System operates at 18 Vdc | | <u>✓</u> |
| i. System operates with BB-451/U Battery | | <u>✓</u> |
| j. System operates with MEP 026A Generator | | <u>✓</u> |
| k. Output ripple of power filter | <u>0.8 vpp</u> | |
| Ripple is less than 1 volt p to p | | <u>✓</u> |

10.3.4.3.2.2 Receiver Sensitivity

- | | | |
|--|--------------------------------|----------|
| i. Pulse width ($3.5 \pm 0.5 \mu s$) | <u>3.2 μs</u> | <u>✓</u> |
| Pulse space, X channel ($12 \pm 0.5 \mu s$) | <u>12.0 μs</u> | <u>✓</u> |
| Pulse space, Y channel ($36 \pm 0.5 \mu s$) | <u>36.0 μs</u> | <u>✓</u> |
| j. Interrogation pulse frequency (200 ± 2 Hz) | <u>200 Hz</u> | <u>✓</u> |
| o. Reply rate (> 60 Hz) | <u>75 Hz</u> | <u>✓</u> |
| p. Attenuator No. 2 setting for 60 Hz average reading on counter | <u>102</u> | |
| q. Calculate sensitivity as explained in text procedure 8. | | |
| for channel 65X (-90 dBm) sensitivity | <u>-92 dBm</u> | <u>✓</u> |

10.3.4.3.2.3 Transmitter Power Output

- | | | |
|--|---------------|----------|
| b. Actual loss of attenuator and cable | <u>36.2</u> | |
| d. Zero set the peak calibrator | | <u>✓</u> |
| e. Reading on peak power meter | <u>100 mw</u> | |
| Power output = step b. + step e. (> 50.0 dBm) | <u>145.6</u> | |

10.3.4.3.2.4 15 Hz Azimuth Reference Burst

- ~~g.~~ Record counter period reading on blank
f. Reading must be between .066533
and .066800 seconds

66.667ms ✓

10.3.4.3.2.5 135 Hz Azimuth Reference Burst

- e. Count 8 pulses as shown in procedure step d.
f. Missing pulse is synchronized as shown in procedure step d.

✓
✓

10.3.4.3.2.6 Azimuth Alignment

- a. Sight has been calibrated as described in procedure step a.
f. Measured distance from magnetic north spot to sighted spot
(< 8.3 inches) *Ant ser No. 003 Compass ser No. 1073*
n. Counter display (33,333 ± ³⁷~~185~~ μs)

0 ✓
33,329 ✓

10.3.4.3.2.7 Demand Only Mode

- d. Pulse generator adjusted to look like figure 7
g. Time for system to turn on (< 20 seconds)
h. Time for system to go to STANDBY (< ⁸⁰~~70~~ seconds)

✓
15sec ✓
✓

10.3.4.3.2.8 DME Only Mode

- f. Antenna stopped with no alarm
g. Identity light indicates code transmitted

✓
✓

10.3.4.3.2.9 Monitor Alarm and Shutdown

e. Parameter Tested	Alarm Indication
Synthesizer Alarm	RT
High VSWR	ANT
Pulse Rate	RT
Peak Power	RT
Rec. Squitter	RT
Ant Speed	ANT
Ant Trigger	ANT
Reply Delay	RT
Aux Burst	RT
North burst	RT

✓
✓
✓
✓
✓
✓
✓
✓
✓
✓
✓

Reset button returns the system to normal

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f. Time for synthesizer alarm (< 5)

4.5 sec ✓

Time for high VSWR alarm (< 4)

3.5 sec ✓

10.3.4.3.2.10 Conversion From Operation, to Manportable, to Airdroppable

a. Set up for operation - units fit properly

✓

c. RT fits in manportable configuration

✓

d. RT fits in airdroppable configuration

✓

e. Antenna fits in manportable configuration

✓

f. Antenna fits in airdroppable configuration

✓

g. Ancillary equipment fits in manportable configuration

✓

h. Ancillary equipment fits in airdroppable configuration

✓

✓

✓

H. Z. [Signature]
Accepted
Contractor QA Representative

6-3-77
Date

[Signature]
Accepted
DCAS Representative

6-3-77
Date

ATTACHMENT 3
FAILURES THAT OCCURRED DURING 100 HOUR BURN-IN

100 HOUR BURN-IN LOG

System 1

RT 002

ANT 001

1. 12/1/76 Burn-in started. Permission given by ESD to conduct the burn-in and system tests without the filter box because it is to be completely redesigned due to interface problems with the .5 KW motor generator.
2. 12/7/76 Burn-in complete. There were no electronic failures during this time; however, an inspection revealed that the compass leaked its fluid. It was decided to change compass types to the same one that is used in the AN/TRN-26 system.

System 2

RT 003

ANT 002

1. 1/20/77 Burn-in started.
2. 1/21/77 RF amplifier failure. Poor solder joint.
3. 1/21/77 Peak power alarm circuitry failure due to wrong connection on the A2 CCA. Corrected by ECR 05602.
4. 1/21/77 Failure on CCA 1A4. Poor solder connection.
5. 1/22/77 Alarm caused by a poor solder connection on CCA 1A2.
6. 1/25/77 An alarm caused by the number of detected pulses from the 1A7 CCA being too low. ECR 05727 was generated to allow 1A7R13 to be a selectable value to adjust the gain on the 1A7 CCA to be optimum.

7. 1/25/77 Failure on peak power due to low output from the gated amplifier 920035-003. Amplifier was replaced.

8. 1/28/77 Peak power alarm caused by a poor solder connection in the 100 watt RF amplifier.

9. 1/30/77 Burn in complete. Last 24 hours without a failure.

System 3

RT 001

ANT 004

1. 3/27/77 Burn-in started.

2. 3/27/77 U5 on 1A1 failed at low temperature.

3. 3/31/77 48V regulator in power supply failed.

4. 4/10/77 The antenna A1 Q1 failed.

5. 4/10/77 RT alarm caused by a cold solder joint on A7 pin 35.

6. 4/15/77 Burn-In complete. Last 24 hours without a failure.

System 4

RT 004

ANT 003

1. 5/5/77 Burn-in started.

2. 5/5/77 Failure on 1A4U5 at cold temperature.

3. 5/5/77 Antenna alarm - 2A1U6 was replaced because of low gain and 2A3C1 was replaced because the capacitor was open.

4. 5/15/77 Burn-in complete - last 24 hours without a failure.